

2SK3048

Silicon N-Channel Power F-MOS FET

■ Features

- Avalanche energy capacity guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown

■ Applications

- Contactless relay
- Diving circuit for a solenoid
- Driving circuit for a motor
- Control equipment
- Switching power supply

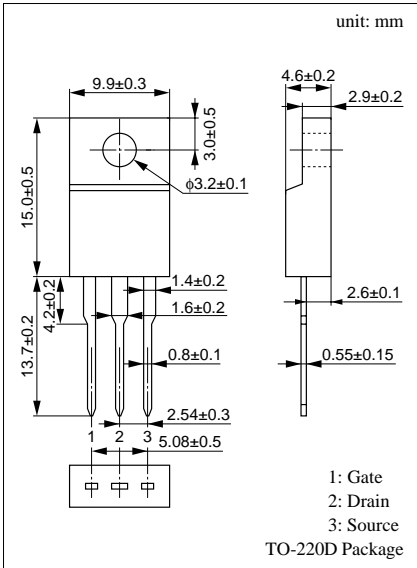
■ Absolute Maximum Ratings (T_C = 25°C)

Parameter		Symbol	Ratings	Unit
Drain to Source breakdown voltage		V _{DSS}	600	V
Gate to Source voltage		V _{GSS}	±30	V
Drain current	DC	I _D	±3	A
	Pulse	I _{DP}	±6	A
Avalanche energy capacity		EAS*	22.5	mJ
Allowable power dissipation	T _C = 25°C	P _D	35	W
	T _a = 25°C		2	
Channel temperature		T _{ch}	150	°C
Storage temperature		T _{stg}	-55 to +150	°C

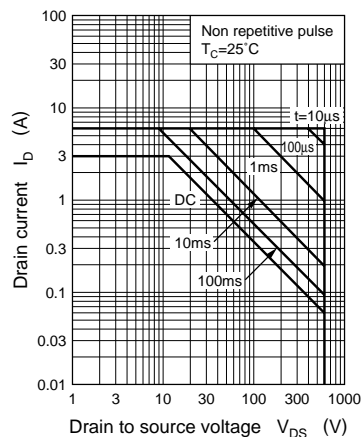
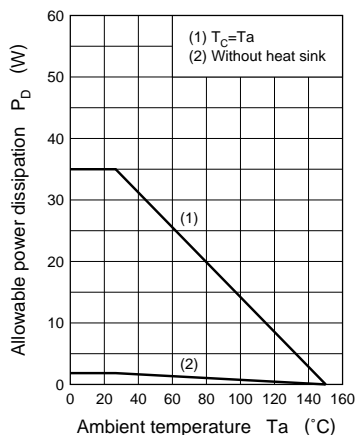
* L = 5mH, I_L = 3A, 1 pulse

■ Electrical Characteristics (T_C = 25°C)

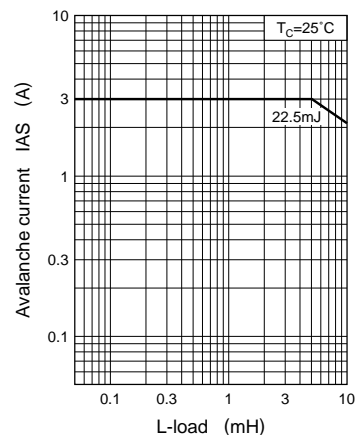
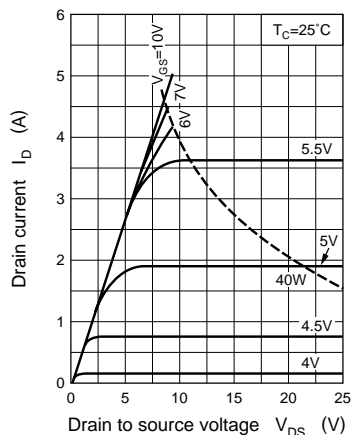
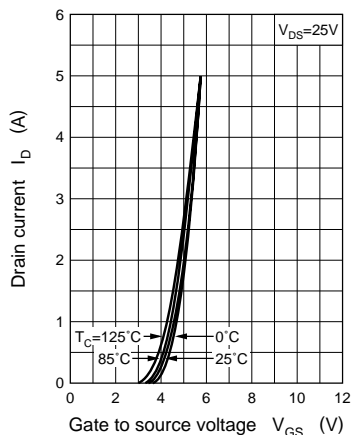
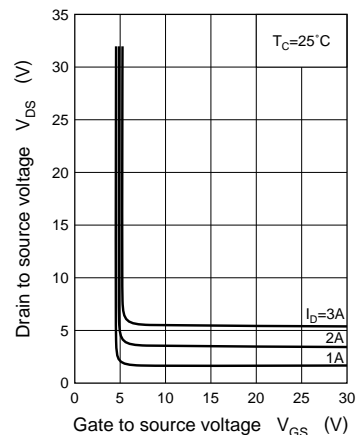
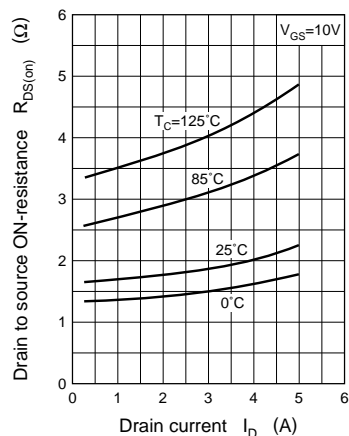
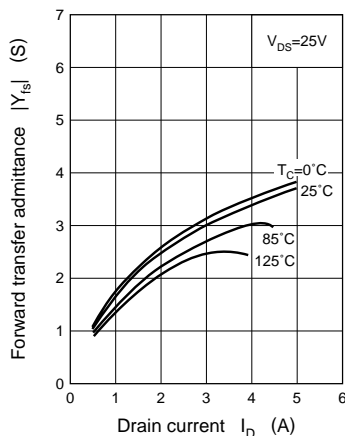
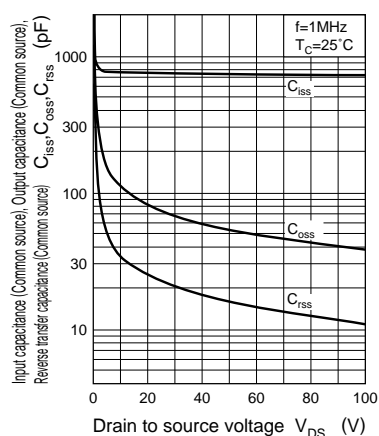
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source cut-off current	I _{DSS}	V _{DS} = 480V, V _{GS} = 0			100	μA
Gate to Source leakage current	I _{GSS}	V _{GS} = ±30V, V _{DS} = 0			±1	μA
Drain to Source breakdown voltage	V _{DSS}	I _D = 1mA, V _{GS} = 0	600			V
Gate threshold voltage	V _{th}	V _{DS} = 25V, I _D = 1mA	2		5	V
Drain to Source ON-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 2A		1.7	2.5	Ω
Forward transfer admittance	Y _{fs}	V _{DS} = 25V, I _D = 2A	1.5	2.5		S
Diode forward voltage	V _{DSF}	I _{DR} = 3A, V _{GS} = 0			-1.5	V
Input capacitance (Common Source)	C _{iss}	V _{DS} = 20V, V _{GS} = 0, f = 1MHz		750		pF
Output capacitance (Common Source)	C _{oss}			80		pF
Reverse transfer capacitance (Common Source)	C _{rss}			25		pF
Turn-on time (delay time)	t _{d(on)}	V _{DD} = 200V, I _D = 2A V _{GS} = 10V, R _L = 100Ω		15		ns
Rise time	t _r			25		ns
Turn-off time (delay time)	t _{d(off)}			90		ns
Fall time	t _f			40		ns

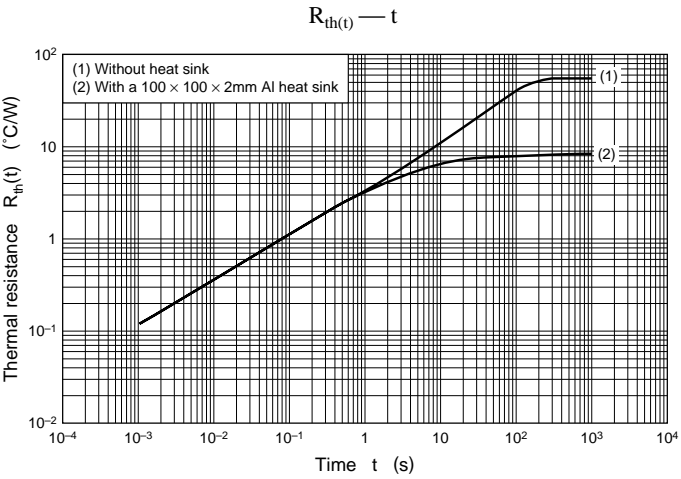
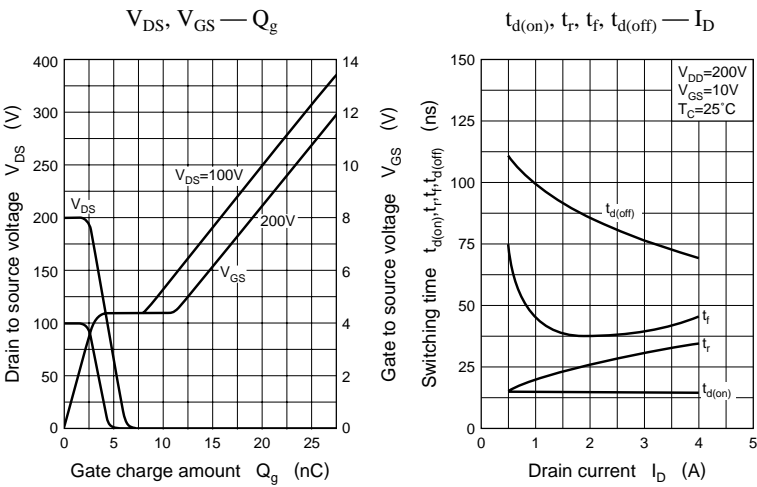


Area of safe operation (ASO)

 $P_D - T_a$ 

IAS — L-load

 $I_D - V_{DS}$  $I_D - V_{GS}$  $V_{DS} - V_{GS}$  $R_{DS(on)} - I_D$  $|Y_{fs}| - I_D$  $C_{iss}, C_{oss}, C_{rss} - V_{DS}$ 



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